

GUIDELINE	PERFORMANCE	EXCEPTIONS & DEVIATIONS
<p>1. Policies</p> <ul style="list-style-type: none"> <li>Specify goals and the means to achieve them.</li> <li>Specify the type of controls necessary to implement the policy.</li> <li>Personnel should understand their authority and responsibility, through accountability.</li> <li>Physical Security should conform to DOE 5630.11, "Safeguards and Security Program."</li> </ul>	<p>1. Policies</p> <ul style="list-style-type: none"> <li>Goals, some of which are derived from institutional-level documents e.g., Appendix B of the BSA Contract, Critical Outcomes, Objectives and Performance Measures, are integrated into the Operations Procedures Manual (<a href="#">OPM</a>). The CAD goal for risk from all hazards is not only to be below relevant legal limits, but also is to be 'as low as reasonably achievable (ALARA).' The ALARA philosophy has also been expanded to include waste generation and the potential for pollution from accelerators and experiments.</li> <li>Supervision, administrative controls, procedures and engineered safety systems are used to implement policy.</li> <li>Authority, responsibility, accountability and interfaces with other groups are defined clearly in the Operation Procedure Manual (OPM), <a href="#">Chapter 1</a>, "Authorization, CAD Documents, and Definitions" and <a href="#">Chapter 2</a>, "Guidelines for the Conduct of CAD Operations." Specific individuals are trained and held accountable for safety, emergency, commissioning and operations roles. Additionally, the Department employs the R2A2 concept, which is an institutional program to define role, responsibility, accountability and authority for each employee.</li> <li>The exterior doors to most buildings are locked from 5 PM to 8:30 AM and on weekends and holidays. The accelerator vault at the Tandem Van De Graaff (TVDG) is secured when operations personnel are not in residence. Other CAD accelerator areas are secured via automatic access-control system hardware.</li> </ul>	<p>1. Policies</p> <ul style="list-style-type: none"> <li>None.</li> </ul>
<p>2. Resources</p> <ul style="list-style-type: none"> <li>Provide sufficient resources, material, and labor.</li> </ul>	<p>2. Resources</p> <ul style="list-style-type: none"> <li>We have a minimum of ten Operators and five Operations Coordinators. This staff is sufficient for safe operation. During operations, materials and resources are managed day-to-day by the Operations Coordinator, and during Shutdown, by the Maintenance Coordinator. Sufficient resources are provided.</li> </ul>	<p>2. Resources</p> <ul style="list-style-type: none"> <li>None.</li> </ul>

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<ul style="list-style-type: none"> <li>Do not use excessive overtime.</li> <li>Provide technical support personnel.</li> <li>Develop a long range staffing plan.</li> </ul>	<ul style="list-style-type: none"> <li>Excessive overtime is avoided where possible by using shift operations.</li> <li>The technical support personnel, Accelerator operators, Siemen's operators, Radiological Control Technicians (RCTs), Collider Accelerator Support (CAS) personnel and Cryogenic Systems (Cryo) Watch personnel, are staffed according to various changes in operations.</li> <li>CAD management prepares a long-range staffing plan.</li> </ul>	
<p>3. Monitoring Of Operations Performance</p> <ul style="list-style-type: none"> <li>Refer to Chapter VI for operating problems.</li> <li>Document problems for evaluation.</li> <li>Supervisor should observe operations frequently.</li> <li>Operations Goals should be to:</li> <li>Minimize the unavailability of the safety system</li> <li>Minimize personnel errors</li> <li>Conform to ALARA guidelines</li> <li>Minimize loss of the facility capability</li> </ul>	<p>3. Monitoring Of Operations Performance</p> <ul style="list-style-type: none"> <li>See Chapter VI for operating problems.</li> <li>Scheduled inspections, performance indicators, audits, reviews and self-assessments are used to document problems for evaluation and to observe operations. Problems are also documented via the Trouble Reporting System (<a href="#">OPM 2.9</a>) and occurrences are documented via the Occurrence Reporting System (<a href="#">OPM 10.1</a>). The CAD uses a formal machine performance-monitoring program: "The CAD Operations Journal."</li> <li>Supervisors participate in inspections and audits, they are members of safety review committees, and they are encouraged by CAD management to 'supervise by walking around.'</li> <li>Operations Goals</li> <li>Operations procedures minimize the unavailability of safety systems by requiring operations to be curtailed should safety systems fail to operate.</li> <li>Minimizing personnel errors is a goal, see <a href="#">OPM 2.1</a>, "CAD Operations Organization and Administration."</li> <li>ALARA is integrated into the <a href="#">OPM</a>, <a href="#">OPM 9.5.1</a> through <a href="#">9.5.12</a>, ALARA Committee procedures. Operators aim at reducing beam losses to the lowest reasonably achievable level.</li> <li>High reliability is an CAD goal given the constraints of safety and available resources. Equipment breakdown at CAD is the major source of radiation exposure to workers, and high reliability is built into components based on experience gained in the last 39 years. At the TVDG, a computer aided</li> </ul>	<p>3. Monitoring Of Operations Performance</p> <ul style="list-style-type: none"> <li>None.</li> </ul>

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<ul style="list-style-type: none"> <li>Minimize the number of unscheduled shutdowns</li> <li>Complete inspections on a timely basis</li> <li>Minimize the amount of overtime</li> <li>Achieve and maintain complete staffing and training requirements</li> <li>Minimize waste</li> <li>Minimize the number of lighted annunciators</li> <li>Goals should be measurable, achievable, and auditable.</li> </ul>	<p>maintenance program is audited on a daily basis in order to aim for maximum system and facility availability.</p> <ul style="list-style-type: none"> <li>Unscheduled shutdowns are minimized through periodic maintenance, formal reporting of problems such as the CAD Trouble Report System, good communications between users and operators such as the Weekly Time Meeting and the CAD Web Site, and by designing equipment to be "radiation hardened."</li> <li>Completing inspections on a timely basis is ensured through written procedures and checklists for Operators, RCTs, Cryo Watch and CAS.</li> <li>Maintaining shift operations during running periods minimizes overtime.</li> <li>Achieving and maintaining complete staffing and training requirements is a requirement see <a href="#">OPM 2.1</a>, "CAD Operations Organization and Administration." For example, see the Operational Safety Limit for Operators, Operations Coordinators and Watch for Hydrogen Targets in <a href="#">OPM 2.5</a>, "Operational Safety Limits / Accelerator Safety Envelope."</li> <li>Waste minimization is a formal program, see the <a href="#">OPM 8.20</a> and <a href="#">OPM 8.22</a> series of procedures that deal with hazardous, radioactive and clean waste plus recycling, and see <a href="#">OPM 1.7</a>, which describes supervisor responsibilities in this area. Waste minimization and pollution prevention are specific responsibilities listed in each person's R2A2 (Roles, Responsibility, Accountability and Authority).</li> <li>When new systems are introduced into the Main Control Room, human factors are considered in the design of panels and annunciators.</li> <li>Goals such as lost work case rate, collective dose and dose per proton are measurable and many have been achieved each year over the last decade. Specific operations goals are included in <a href="#">OPM 2.1</a> "CAD Operations Organization and Administration," Section 2.5, "Monitoring of Accelerator Performance." ALARA goals are included in <a href="#">OPM 9.5.7</a>, "ALARA Goals." Each week during operations and less frequently during major shutdowns, physicists, operators, Head of Main Control Room, Users, and CAD management meet to critique the previous week's operations and to discuss future goals.</li> </ul>	

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<ul style="list-style-type: none"> <li>• Develop an Action Plan to meet goals.</li> <li>• Report results of audits to facility management and DOE.</li> <li>• Perform Self-Assessments.</li> </ul>	<ul style="list-style-type: none"> <li>• Ad hoc groups or CAD committees typically develop action Plans. For example, an action plan which includes re-training supervisors was recently developed to reduce the lost work case rate.</li> <li>• Results of audits are reported to CAD management and where applicable up the line to DOE.</li> <li>• Management and worker self-assessments are conducted on an established schedule and reports are forwarded to CAD management. Corrective actions are tracked to closure. See <a href="#">OPM 9.4.2</a>, "CAD Self Assessment," and <a href="#">OPM 13.10.1</a>, "Independent Assessments." The CAD Enhanced Work Planning Procedure, <a href="#">OPM 2.28</a>, contains a job-specific assessment module that requires workers to assess specific jobs at completion. The department's self-assessment program is described in terms of the Baldrige Award Criteria in the Assessment Planning and Evaluation Matrix dated December 1998.</li> </ul>	
<p>4. Accountability</p> <ul style="list-style-type: none"> <li>• Hold workers and supervisors accountable for their actions.</li> <li>• Use discipline and performance appraisals to ensure accountability.</li> </ul>	<p>4. Accountability</p> <ul style="list-style-type: none"> <li>• The CAD has a formal performance appraisal program for all CAD staff. These documents are maintained by the CAD Chairman's Office.</li> <li>• Adhering to all rules, including rules dealing with safety, quality, operations or maintenance, is factored into an individual's appraisal. For example, letters to a personnel file have been written when procedures were not followed. On other occasions, personnel have been given time off without pay or Users have had letters sent back to their University management.</li> </ul>	<p>4. Accountability</p> <p>None.</p>

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<p>5. Management Training</p> <ul style="list-style-type: none"> <li>Formal training of supervisors and other management should be incorporated into overall training plan.</li> </ul>	<p>5. Management Training</p> <ul style="list-style-type: none"> <li>The CAD Training Plan is described in <a href="#">OPM 1.12</a>, "Conduct of Training Policy (Training Plan)." The CAD has performed job assessments for all positions including management and supervisors, and has developed corresponding training requirements. The CAD Training and Procedures Manager maintains Job assessments.</li> </ul>	<p>5. Management Training</p> <p>None.</p>
<p>6. Planning For Safety</p> <ul style="list-style-type: none"> <li>Provide guidance to personnel so that they understand safety requirements.</li> <li>Explain the role of Safety Analysis system to all operations personnel.</li> </ul>	<p>6. Planning For Safety</p> <ul style="list-style-type: none"> <li>All jobs are assessed for environmental, safety and health hazards, and the necessary training is given before persons are authorized to perform the job. In order to guide personnel, the CAD has incorporated job-specific safety requirements into OPM procedures and checklists (e.g., <a href="#">OPM 2.28</a>) and has required staff to qualify in formal training programs where job-specific safety rules are explained.</li> <li>The Accelerator Safety Envelope (<a href="#">OPM 2.5</a>) binds operators. Safety analysis is required for operations outside the envelope. Management through several procedures in <a href="#">OPM Chapter 9</a> controls safety analysis, and in <a href="#">OPM 2.11</a>, which is directly relevant to accelerator physicists or beam commissioners. CAD accelerator physicists, beam commissioners, project engineers, project physicists, liaison engineers and liaison physicists are made familiar with the methods for safety review through periodic training. For operations that inadvertently go beyond the safety envelope, operators are required to report via the Occurrence Reporting Procedure, <a href="#">OPM 10.1</a>. All operations staff is made aware of the protocols either for reporting occurrences or for scheduling safety reviews through facility-specific and job-specific training programs.</li> </ul>	<p>6. Planning for Safety</p> <p>None.</p>